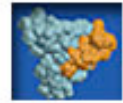
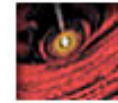
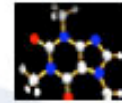
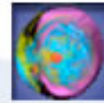




SciDAC

Scientific Discovery through Advanced Computing



SciDAC Conference Report

William M. Tang

**Chief Scientist, Princeton Plasma Physics Laboratory
and SciDAC '06 Conference Chair**

US DOE Office of Science

Advanced Scientific Computing Advisory Committee Meeting

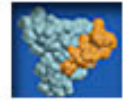
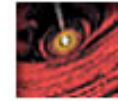
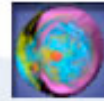
March 15-16, 2006

Washington, DC



SciDAC

Scientific Discovery through Advanced Computing



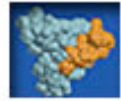
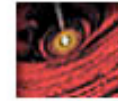
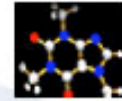
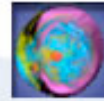
Conference Background

- SciDAC began in 2001 as a five-year program to *accelerate progress toward scientific discovery via interdisciplinary collaborations between CS, Applied Math, and Domain Applications scientists*
- SciDAC continues to help develop the software infrastructure needed for *multi-disciplinary computational science at the terascale to the petascale and beyond*
- First three SciDAC conferences (2002-2004) were structured as *annual PI meetings*



SciDAC

Scientific Discovery through Advanced Computing



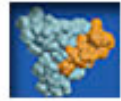
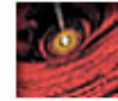
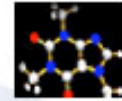
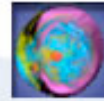
2002 SciDAC PI Meeting: Reston VA, January 15-17

- Overview-type plenary presentations (8) on 1st day covered domain applications (combustion, quantum chemistry, astrophysics, accelerator science, fusion energy science)
- Panels (2) on 1st day covered the Integrated Software Infrastructure Centers (ISICs) and Collaboratories/Networking
- Poster sessions on 2nd day covered computational science challenges facing domain applications, ISICs, and Collaboratories/Networking
- Breakout sessions on final day covered collaboratories and network research issues
- Attendees number: 131 (53% labs; 23% universities; 24% DOE managers, etc)



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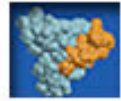
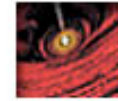
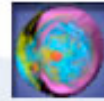
2003 SciDAC PI Meeting: Napa CA, March 10-12

- Plenary presentations (19) covered domain applications, ISICs , and collaboratories/networking
- Panels (2) covered performance tuning and future infrastructure needs
- Poster sessions (2) with one on domain applications and one on ISICs and collaboratories
- Attendees number: 122 (57% labs; 33% universities; 10% DOE managers, etc.)



SciDAC

Scientific Discovery through Advanced Computing



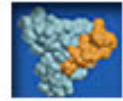
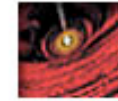
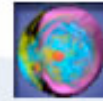
2004 SciDAC PI Meeting: Charleston SC, March 22-24

- Plenary presentations (21) covered domain applications, ISICS, and collaboratories
- A panel gave impressions of impact of SciDAC on science and research
- Posters (54) presented in two separate sessions
- Attendees number: 121 (43% labs; 35% universities; 22% DOE managers, etc.)



SciDAC

Scientific Discovery through Advanced Computing



SciDAC 2005 Conference

Nature of the annual SciDAC meeting dramatically changed—from a ***PI Meeting*** to a ***Computational Science Conference*** with broader goals and more diversity in attendance

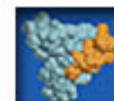
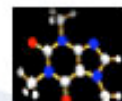
- focus on ***distinctive computational science achievements*** instead of progress reports





SciDAC

Scientific Discovery through Advanced Computing



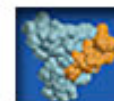
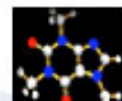
SciDAC 2005 Conference:

- All presentations (oral and poster) invited by **Organizing Committee of distinguished computational scientists** (chaired by Tony Mezzacappa of ORNL)
- Inclusive of **broad computational science community** -- international (non-US) and outside of DOE and SciDAC programs
- Vendor participation (IBM, CRAY, etc.) included
- Press invited
- Formal proceedings produced
- Meeting was netcast



SciDAC

Scientific Discovery through Advanced Computing



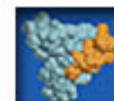
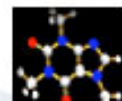
2005 SciDAC Conference

- 40 invited presentations, with 8 featured talks (longer format) and a keynote -- ***including non-SciDAC and international (non-US) speakers***
- Panels covered (1) ***SciDAC-2 outlook***; (2) ***infrastructure trends/needs***, and (3) the ***vendors' perspective***
- Posters (60) covered ***all SciDAC project areas***
-- proved very popular & frequently downloaded
- Attendees number: **285** (56% labs; 21% universities; 11% DOE managers; 12% others)

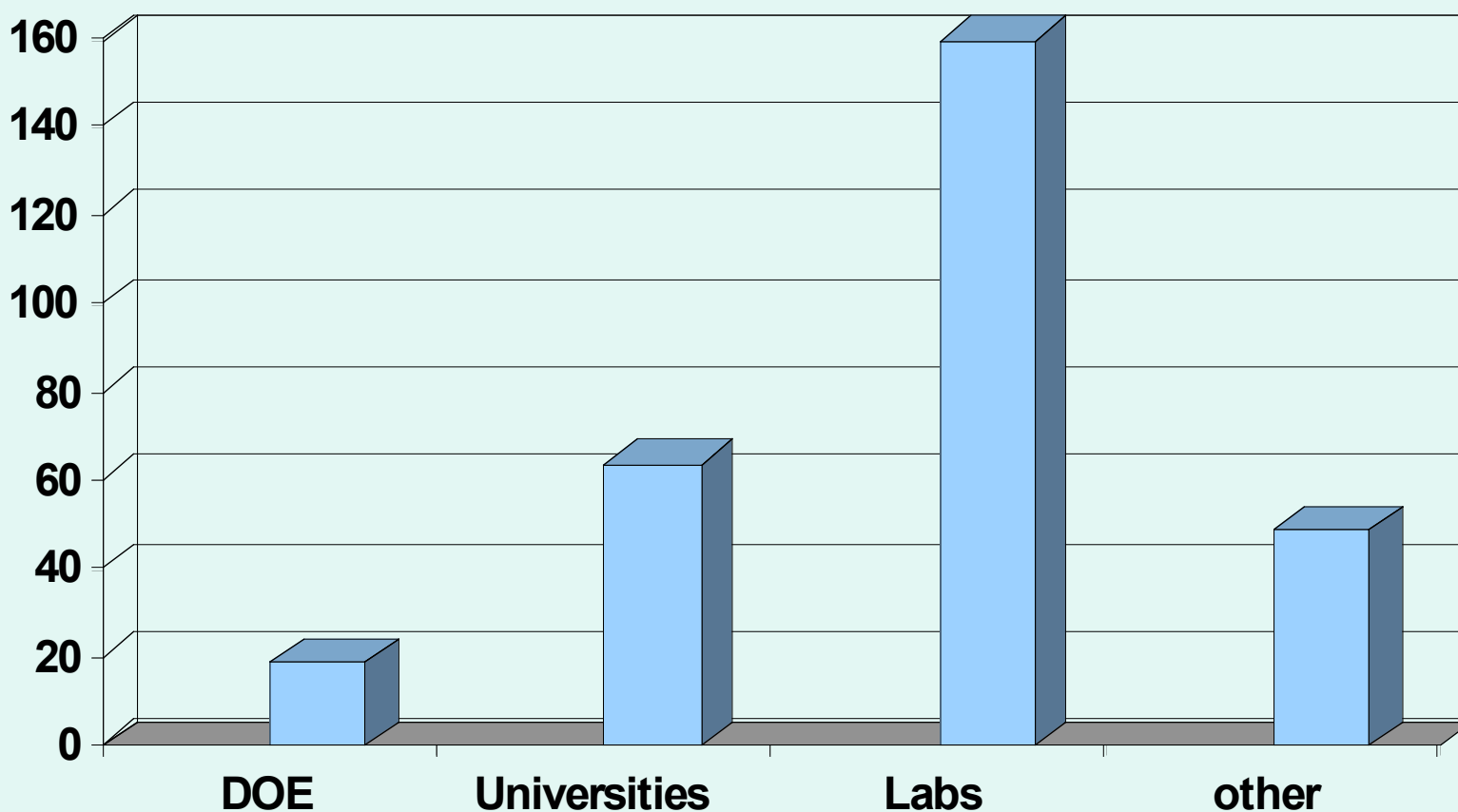


SciDAC

Scientific Discovery through Advanced Computing



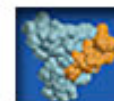
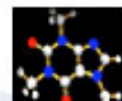
2005 Conference Registrants (285)



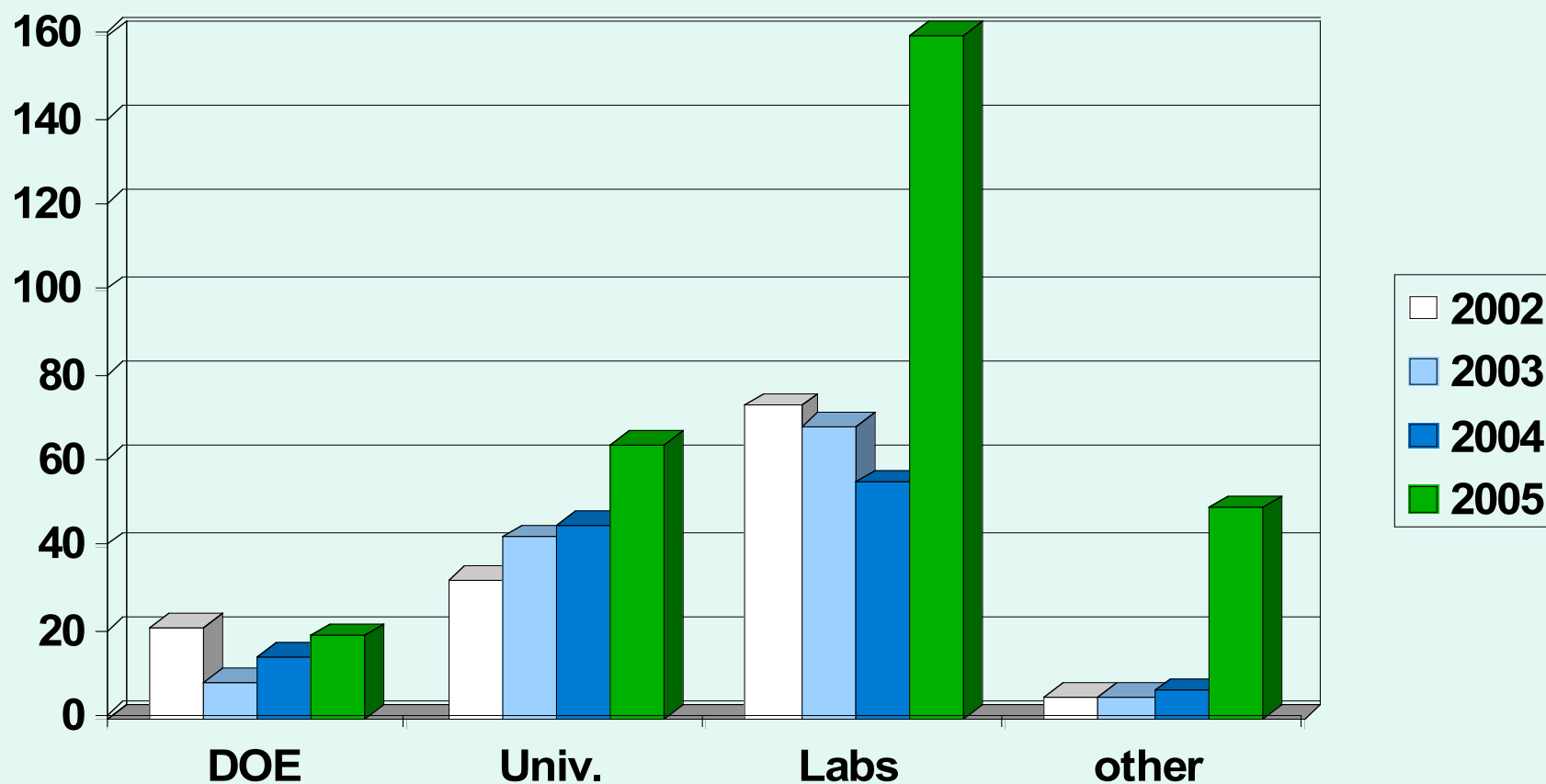


SciDAC

Scientific Discovery through Advanced Computing



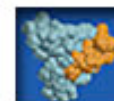
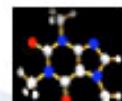
New scientific conference format especially *stimulated attendance from the labs* (which had been in decline)



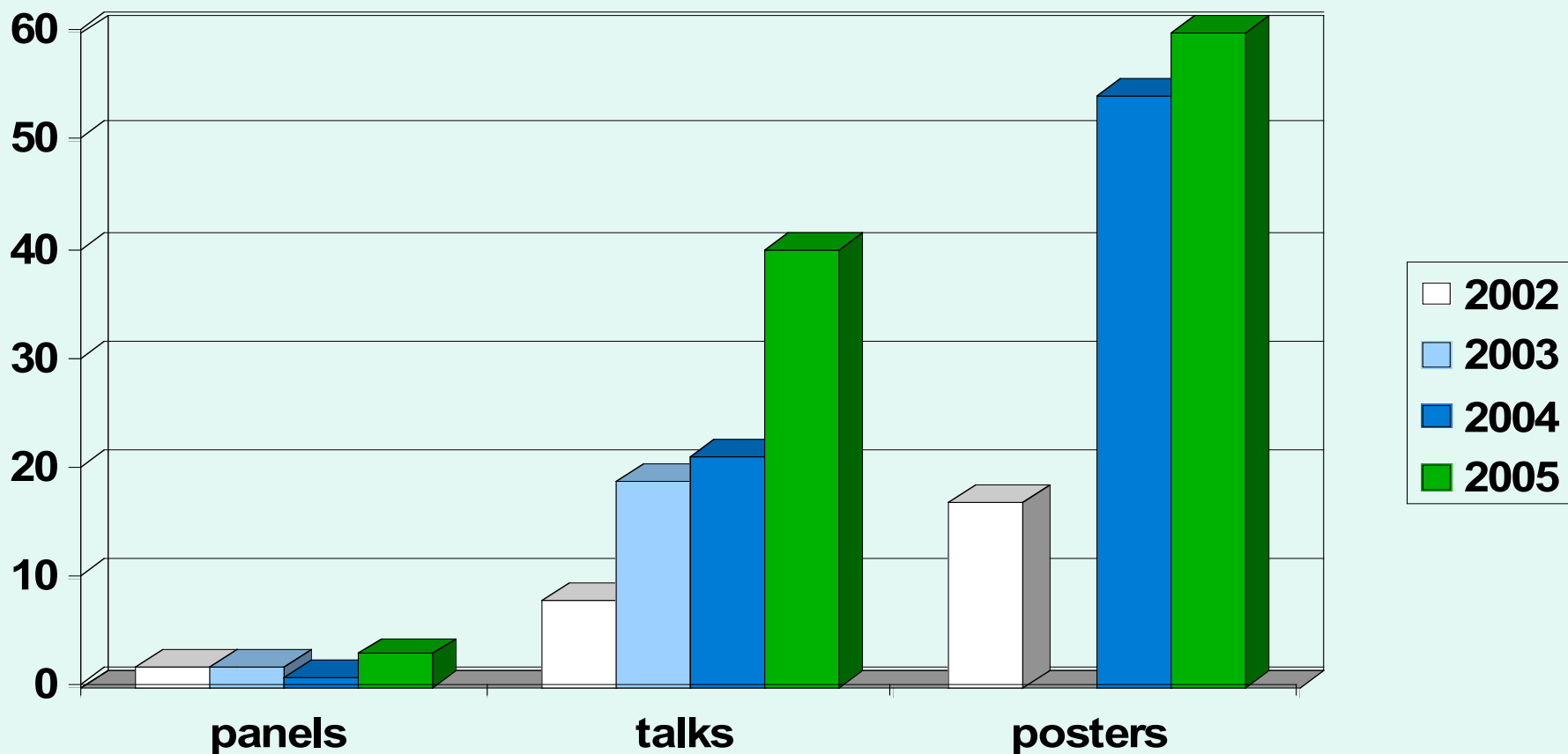


SciDAC

Scientific Discovery through Advanced Computing



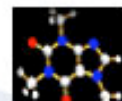
New scientific conference format also *stimulated growth in scientific material/content generated and preserved*





SciDAC

Scientific Discovery through Advanced Computing



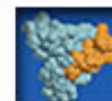
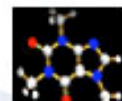
SciDAC 2005 Conference *content archive* has proven to have a *robust “shelf-life”*

- SciDAC '05 archives still generating 70-80 hits/week on presentations, posters, and netcasts – ***reaching far beyond the original audience***
- SciDAC '05 Proceedings (published in attractive hardback volumes by IOP), which were distributed to conference attendees, ***classified as refereed publications***
 - online version frequently downloaded



SciDAC

Scientific Discovery through Advanced Computing



SciDAC 2005 Conference Proceedings has *generated strong interest*

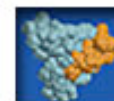
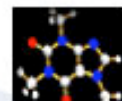
Data on Downloads (as of 2/20/06):

- 2975 downloads of abstracts (html)
- 8791 downloads of full papers (pdf)
- Top paper has 363 downloads
- Average number of downloads per paper is 90
- Top 5 papers each have over 200 downloads



SciDAC

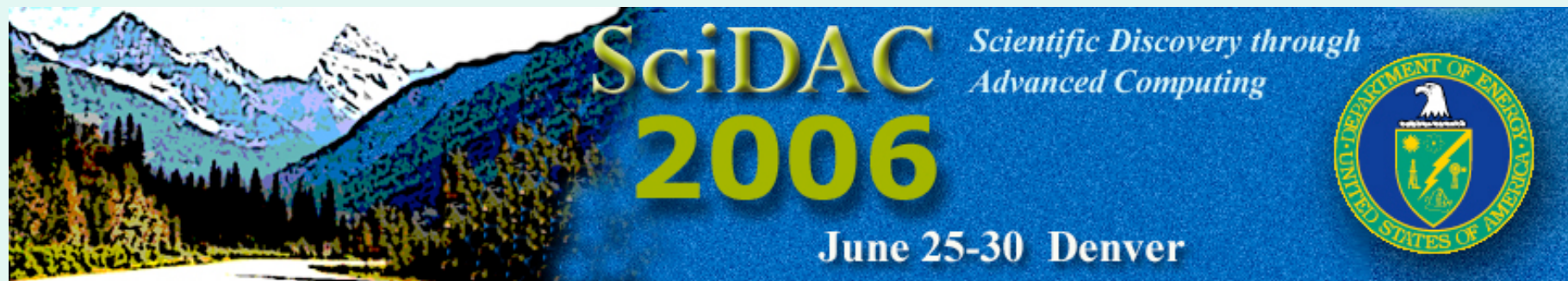
Scientific Discovery through Advanced Computing



SciDAC 2006 Conference: June 25-30 in Denver, Colorado

SciDAC '06 Conference will continue this successful focus on *distinctive computational science achievements*

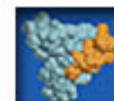
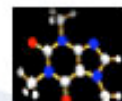
-- half day added for specific coverage of the *launching of the SciDAC II Program (next 5-year phase of SciDAC)*





SciDAC

Scientific Discovery through Advanced Computing



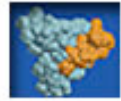
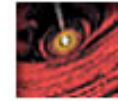
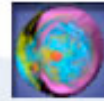
2006 Organizing Committee

• Accelerators	Warren Mori	UCLA
• Astrophysics	Tony Mezzacappa	ORNL
• Biology	Steve Plimpton	Sandia
• Chemistry	Theresa Windus	PNNL
• Climate	Phil Jones	LANL
• Combustion	John Bell	LBNL
• Fusion	Bill Tang	PPPL/Princeton U.
• Lattice QCD	John Negele	MIT
• Materials	Jim Davenport	BNL
• Applied Math	David Keyes	Columbia U.
• Applied Math	Lori Diachin	LLNL
• Comp Science	Rob Ross	ANL
• Comp Science	Arie Shoshani	LBNL
• Visualization	Kwan-Liu Ma	UC Davis



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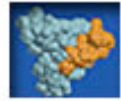
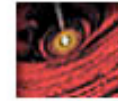
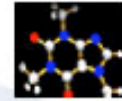
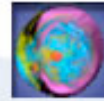
2006 SciDAC Conference Preview

- 39 invited (plenary) talks finalized for the Monday-Thursday program, including 10 featured presentations with longer format
- Vendor panel covering architectures (IBM Blue Gene, Cray XT & X1 series, ...)
- More than 60 posters (selection in progress)
- Limited increase in vendor attendance with a small number of display booths allowed
- Cross-participation by DOD HPCMP users meeting



SciDAC

Scientific Discovery through Advanced Computing



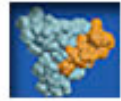
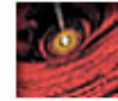
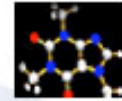
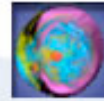
SciDAC 2006 Agenda Highlights

- Monday keynote talk: ***Combustion presentation by Fernbach Prize winner John Bell***
- Monday anchor talk: ***Vic Reis on “Simulation, Computation and the Global Nuclear Energy Partnership”***
- Tuesday **non-SciDAC** talk: ***Dan Meiron on Verification and Validation @ CalTech ASCI Center***
- Wednesday **non-US** talk: ***Christine Davies of U. Glasgow (UK) on Lattice QCD***
- Thursday featured talk: ***Materials presentation by Gordon Bell Prize winner Frederick Streitz***
- **Announcements of SciDAC-2 Winning Proposals** by Ray Orbach (Monday) and Michael Strayer (Friday)



SciDAC

Scientific Discovery through Advanced Computing



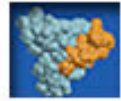
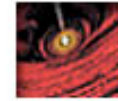
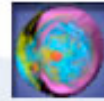
Status of 2006 Conference

- Conference officially endorsed by APS and SIAM
- DOE Conference approval obtained
- Conference pages are linked from SciDAC website (www.scidac.org) and already receiving more than 300 hits/week
- Hotel contract allows ALL attendees to receive prevailing per diem rate (\$124)
- (As of 2/20) 37 of 39 speakers have accepted (including ALL the featured talks)
- (As of 2/20) Two vendor sponsors are confirmed (DataDirect and Cray) with more expected



SciDAC

Scientific Discovery through Advanced Computing



Status of SciDAC 2007 Conference

- Conference chair selected: ***David Keyes of Columbia University***
- Infrastructure team, headed by ***Betsy Riley of ORNL***, is in place
- Conference hotel proposals from ***East Coast*** (north) are being evaluated

***We welcome ASCAC to join us at the
SciDAC 2006 Conference in Denver:***

www.scidac.org/Conference